Biography

Robert L. Hobart

Deputy Commander
C4I Integration

Marine Corps System Command

Mr. Robert L. Hobart earned his Bachelor's of Electrical Engineering degree from the Georgia Institute of Technology in 1972. He began his professional career immediately with Southern Bell as a junior engineer and joined the civil service in 1973 to work for the Department of the Navy (DON). He has held increasingly more responsible positions within DON at the Naval Electronic Systems Command (NAVELEX), now Space and Naval Warfare Systems Command (SPAWAR), Program Executive Office, Theater Surface Combatants, (PEO TSC) and the Naval Sea Systems Command (NAVSEA). At SPAWAR, Mr. Hobart was the system engineer for the Surveillance Towed Array Sensor(SURTASS), an Acquisition Category (ACAT) II program, from prior to Milestone 0 through Milestone III which included the introduction of that system's first twelve units into Navy Service.

Following this successful experience, Mr. Hobart was named Program Manager for the Fixed Distributed System (FDS), an ACAT I program, the highest visibility category in DoD. Mr. Hobart was the first civilian selected as Program Manager for an ACAT I program under the auspices of the Defense Acquisition Workforce Improvement Act (DAWIA). After the successful completion of the first two units of FDS and the completion of the FDS program, Mr. Hobart transferred to PEO TSC as the system engineer for Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I). He then transferred to the position of System Engineering Division Head for the Single Integrated Air Picture (SIAP) System Engineering Task Force, a Joint venture chartered by OSD.

He was promoted to the Senior Executive Service (SES) in September 2001 and currently holds the positions of Chief Engineer (Acting) and Deputy Commander, C4I Integration, for the Marine Corps Systems Command. During his career at DON, Mr. Hobart earned his Master's

Relationship of Enterprise Architecture to the Warfighting Capability

Mr. Robert L. Hobart

Deputy Commander for C4I Integration

Marine Corps Systems Command

Purpose & Desired Outcomes

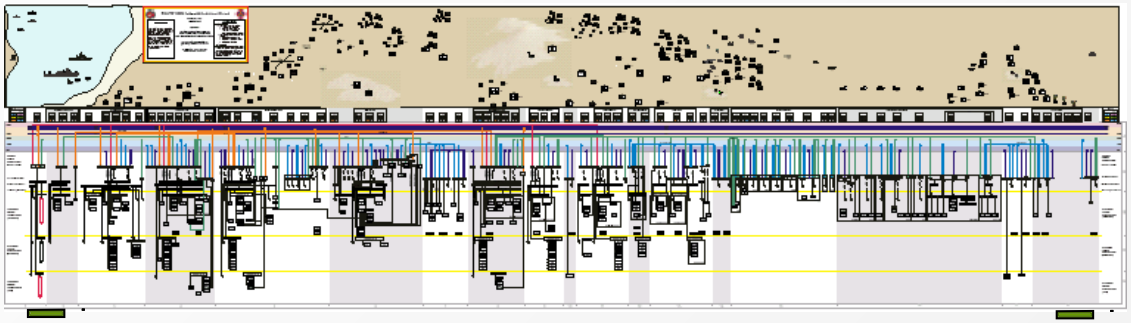
Purpose – To emphasize the important influence the Enterprise Architecture has as a contribution to the Warfighting Capability.

Desired Outcomes –

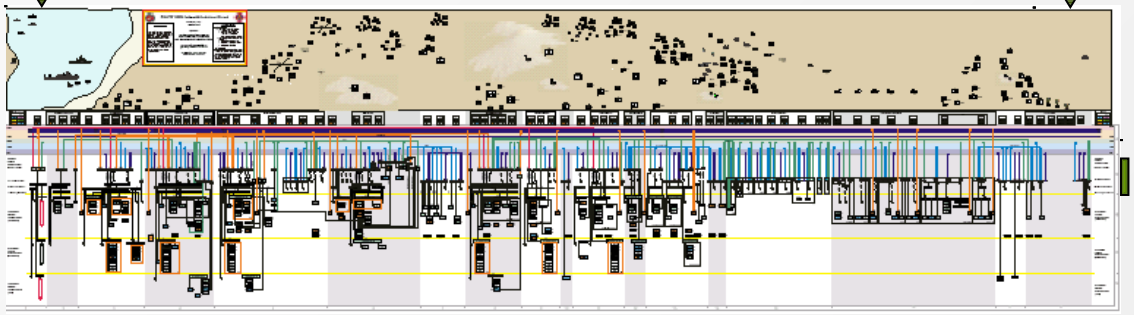
- Depict how the Enterprise Architecture contributes to the Warfighting Capability
  - Illustrate why we need an Enterprise Architecture
  - Provide an understanding of how architectural views combine to create the Enterprise Architecture.
- Describe the process of turning IT Capital Investment into Improved USMC Operations through the use of Enterprise Architecture
- Report back the efforts of the Fires Architecture OAG

What is an Enterprise Architecture?

Baseline Architecture



Disciplined Integration Plan



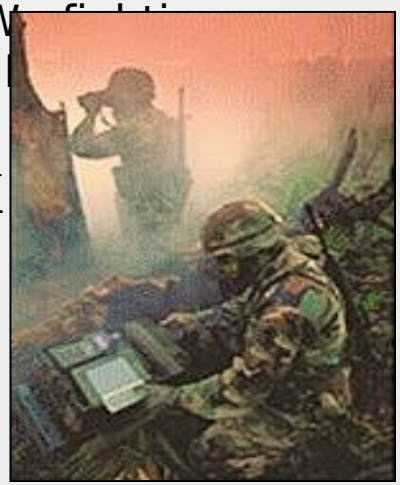
Target Architecture

Enterprise Architecture –

- Is a discipline for assessing and recommending candidate information technology solutions in an integrated context with business and mission operations

Translates to –

- Significant increase in the W… Capa…



Why do we need an Enterprise Architecture?

Provides the basis from which we create Operational Capability

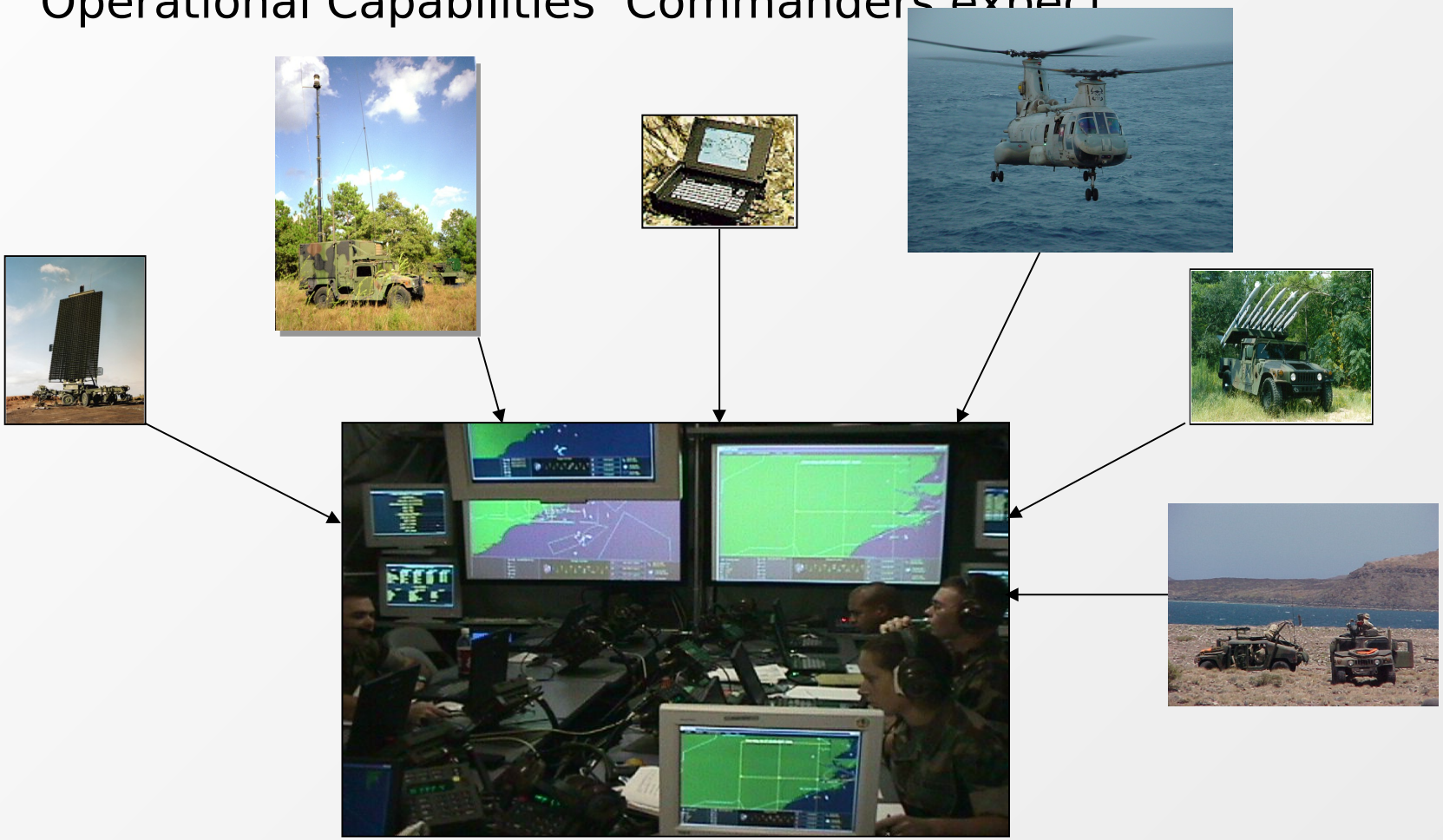
➢Translates the linkages, which turn individual legacy systems and “to be fielded systems”, into Warfighting Capabilities

- ➢ **Challenges**
- Contracts *and* development is based on “stovepipe” system
- IT initiatives often justified on their own merits
- Autonomous Program Management including budgets
- Interface to SMEs and operations is project driven

EA is the disciplined approach to achieve a Network Centric Warfare Capability

Why do we need an Enterprise Architecture? (cont)

- Provides the necessary Systems Engineering so the family of individual architectures can integrate to produce required Operational Capabilities Commanders expect



EA: Integrating the IT Budget With Operations

Warfighter Operations

Vision & Strategy

Enterprise Architecture

Baseline Architecture

- Ops View
- Systems View

Target Architecture

- Ops View
- Systems View

Sequencing Plan/Release Architecture

$$ Guidance $$

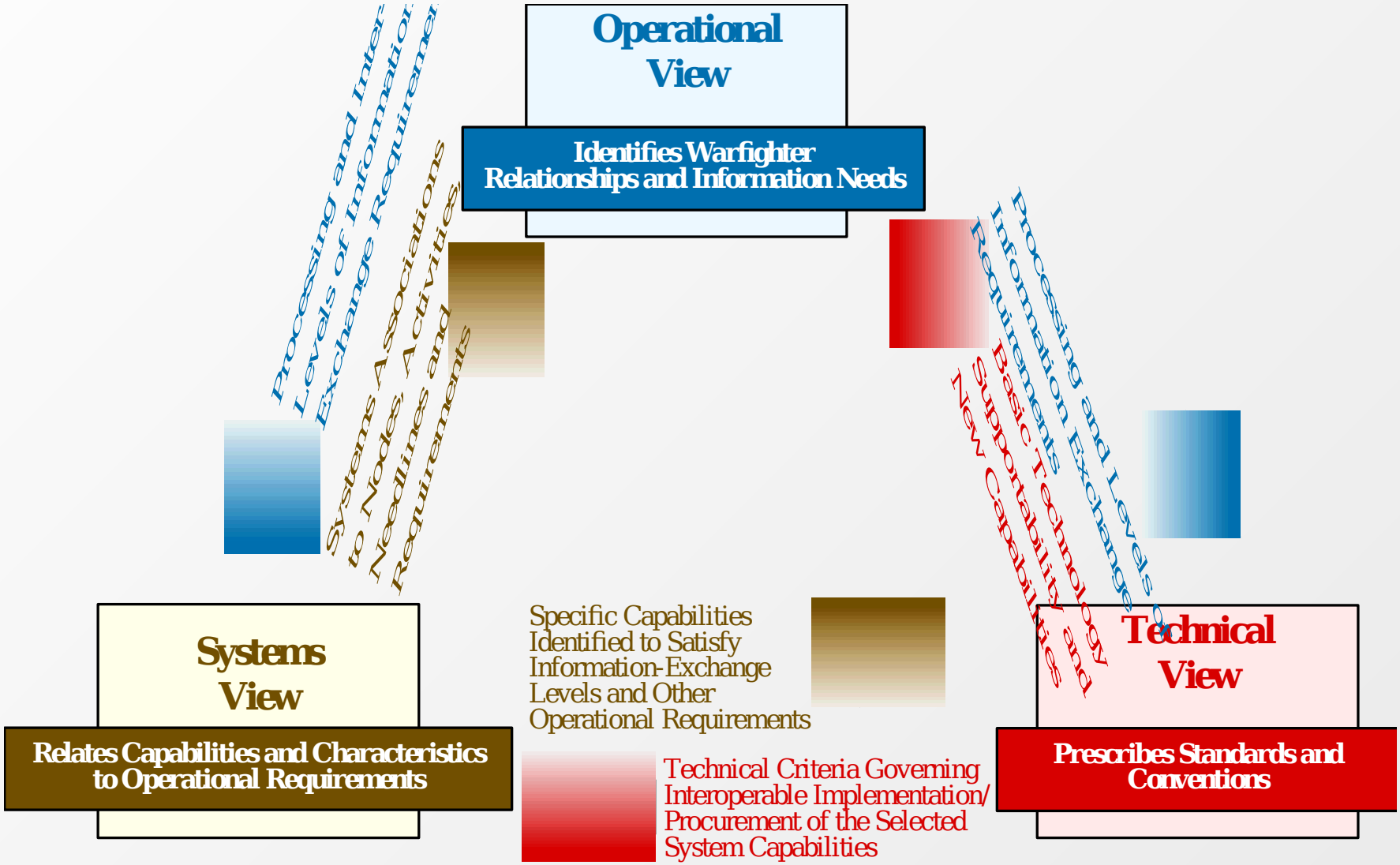
Improved Operations

Deployed Solutions

Integrated Portfolio

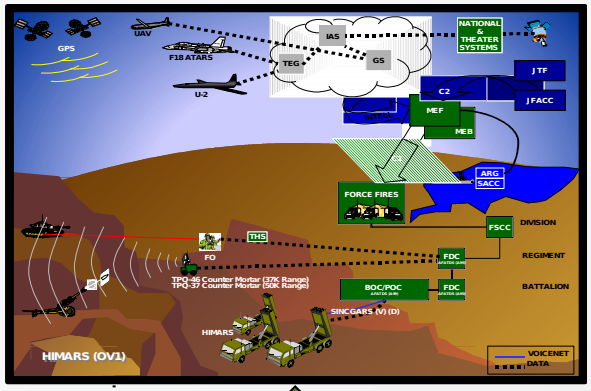
PM	PM	PM	PM	Mgmt
Project	Project	Project	Project	O&M

Linkages among Views


Operational View
Identifies Warfighter Relationships and Information Needs
Processing and Interoperability Levels, Information Exchange Requirements
Systems Associations to Nodes, Activities, Needlines and Requirements
Processing and Levels, Information Exchange Requirements, Basic Technology Supportability and New Capabilities
Systems View
Relates Capabilities and Characteristics to Operational Requirements
Specific Capabilities Identified to Satisfy Information-Exchange Levels and Other Operational Requirements
Technical Criteria Governing Interoperable Implementation/ Procurement of the Selected System Capabilities
Technical View
Prescribes Standards and Conventions

Linkages Among Views: An Example

Operational View (OV)

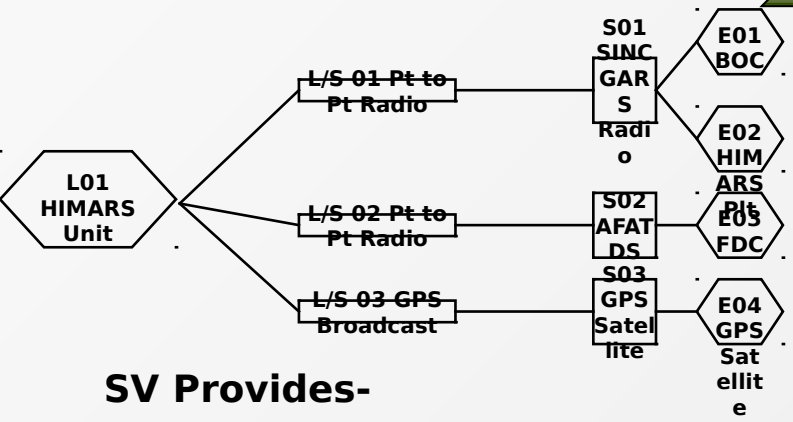


OV Provides-

Warfighter Relationship and Information Needs

➢Linkages are combined in the C4ISP for analysis and documenting the Enterprise Architecture

Systems View (SV)



SV Provides-

Capabilities to Characteristics to

Technical View (TV)

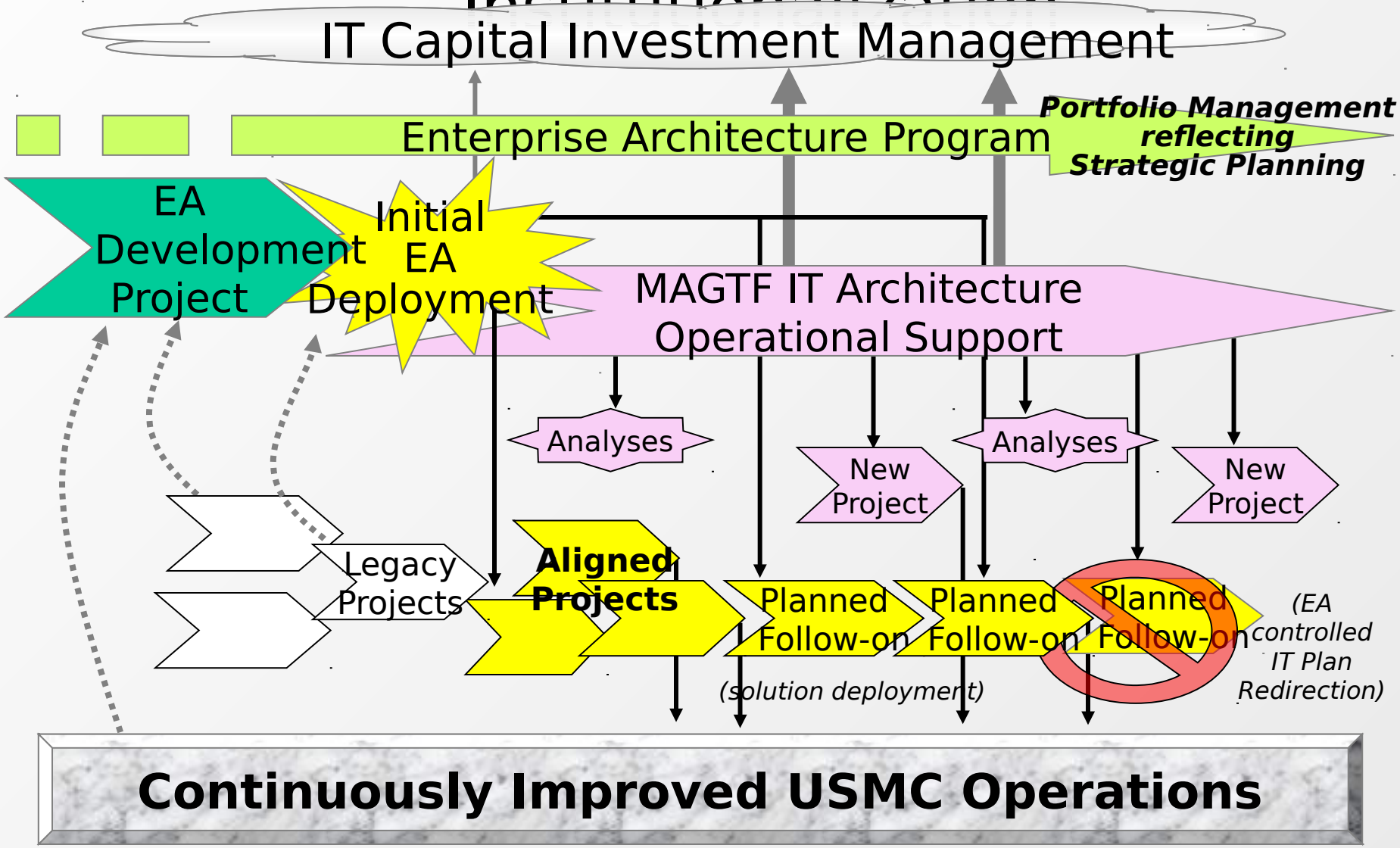
JTA Section	Service Area	Service	Standard	Standard Name	JTA Paragraph
2.1	Information Technology Stnds				
2.2	Information Processing Stnds				
2.3	Information Transfer Stnds				
2.4	Information Modeling, Metadata, and Info Exchange Stnds				
2.5	Human Computer Interface Stnds				
2.6	Information Security Stnds				
C4ISR					
Cryptologic					
Nuclear C2					
Space Recon					
Combat Support					
Automatic Test System					
Def Transport System					
Medical					
Modeling and Simulation					
Weapon Systems					
Aviation					
Ground Vehicle					
Missile Defense					
Missile Systems					
Munition Sys					
Soldier/Marine Systems					
N/A	MARCORSYSCOM Directives				N/A

TV Provides-

Prescribes Standards and Conventions

Q

USMC Enterprise Information Technology Architecture



Back Up Slides

Roles and Responsibilities MOA

HQMC, C4 CIO

- Approve the EITA(MITA)
- Define and issue IT standards and policies
- Participate in the collaborative environment
- Develop the Roadmap for enhancing the EITA
- Address architectures in AIS/IT requirements

MCCDC

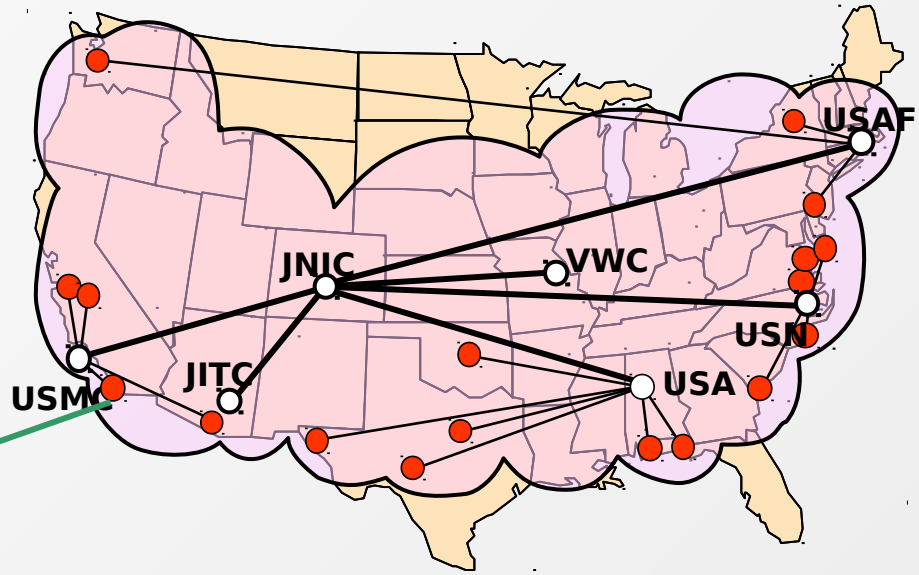
- Develop and maintain the operational architectures and concepts
- Participate in the collaborative environment
- Address architectures in AIS/IT requirements

MCSC

- Develop and maintain systems and technical architectures
- Create a collaborative environment to develop and maintain the EITA
- Ensure all IT programs are compliant with the EITA
- Lead the resolution of conflicts between operational, systems, and technical views

JDEP CONTRIBUTIONS TO THE ENTERPRISE ARCHITECTURE

- **A Toolbox to Evaluate Individual and Family of Systems (FOS) Interoperability**
- Designed for use by the Developer,Tester, **Warfighter**
- Systems, Simulators, Stimulators, Data Exchange Specifications, Data Collection and Analysis



- **Operational JDEP Node/NDEP Capability**
- Designed to conduct controlled, repeatable tests on pieces of the Enterprise Architecture both Internally and Jointly

reates a Joint environment capable of developing solutions to challeng

in the Enterprise Architecture

Operational Architecture (OA) Views

- The primary purpose of an OA is to define operational elements, activities and tasks, and information exchange requirements
- OAs incorporate doctrine and assigned tasks and activities
- Activities and information exchange requirements may cross organizational boundaries
- OAs are not generally systems-dependent
- Generic activity descriptions are not based on an organizational model or force structure
- OAs should clearly identify the time phase(s) covered (e.g., specific years; “as-is” or “to-be;” “baseline,” “planned,” and/or “transitional”).

From the C4ISR Architecture Framework, v2.0, 18 December 1997

System Architecture (SA) Views

- The primary purpose of a SA is to enable or facilitate operational tasks and activities through the application of physical resources
- SAs map systems with their associated platforms, functions, and characteristics back to the OA
- SAs identify system interfaces and define the connectivities between systems
- SAs define system constraints and bounds of system performance behavior
- SAs are technology-dependent, show how multiple systems within a subject area link and interoperate, and may describe the internals of particular systems

From the C4ISR Architecture Framework, v2.0, 18 December 1997

SA Views (cont)

- SAs can support multiple organizations and missions
- SAs should clearly identify the time phase(s) covered
- SAs are based upon and constrained by technical architectures (TAs)

From the C4ISR Architecture Framework, v2.0, 18 December 1997

Technical Architecture (TA) Views

- The primary purpose of a TA is to define the set of standards and rules that govern system implementation and system operation
- TA views are based on associations between operational requirements and their supporting systems, enabling technologies, and appropriate interoperability criteria
- A TA profile is constructed from an enterprise-wide set of standards and design rules for specific standards contained in the Joint Technical Architecture and other applicable standards documents
- The TA standards and criteria should reflect multiple information system implementation paradigms

From the C4ISR Architecture Framework, v2.0, 18 December 1997

TA Views (cont)

- TA profiles account for the requirements of multi-platform and network interconnections among all systems that produce, use, or exchange information electronically for a specifically bounded architecture configuration
- TAs must accommodate new technology, evolving standards, and the phasing out of old technology
- TAs should be driven by commercial standards and direction

From the C4ISR Architecture Framework, v2.0, 18 December 1997

C4ISR Framework Products

Applicable Architecture View	Product Reference	Architecture Product	Essential or Supporting	General Nature
All Views (Context)	AV-1	***Overview and Summary Information***	**Essential**	Scope, purpose, intended users, environment depicted,analytical findings, if applicable *(4.2.1.1)*
All Views (Terms)	AV-2	***Integrated Dictionary***	**Essential**	Definitions of all terms used in all products *(4.2.1.2)*
Operational	OV-1	***High-level Operational Concept Graphic***	**Essential**	High-level graphical description of operational concept (high-level organizations, missions, geographic configuration, connectivity, etc.) *(4.2.1.3)*
Operational	OV-2	***Operational Node Connectivity Description***	**Essential**	Operational nodes, activities performed at each node, connectivities & information flow between nodes *(4.2.1.4)*
Operational	OV-3	***Operational Information Exchange Matrix***	**Essential**	Information exchanged between nodes and the relevant attributes of that exchange such as media, quality, quantity, and the level of interoperability required. *(4.2.1.5)*
Operational	OV-4	***Command Relationships Chart***	Supporting	Command, control, coordination relationships among organizations *(4.2.2.1)*
Operational	OV-5	***Activity Model***	Supporting	Activities, relationships among activities, I/Os, constraints (e.g., policy guidance), and mechanisms that perform those activities. In addition t showing mechanisms, overlays can show other pertinent informa *(4.2.2.2)*
Operational	OV-6a	***Operational Rules Model***	Supporting	One of the three products used to describe operational activity sequen timing that identifies the business rules that constrain the operation *(4.2.2.3.1)*
Operational	OV-6b	***Operational State Transition Description***	Supporting	One of the three products used to describe operational activity sequen timing that identifies responses of a business process to events *(4.2.2.3.2)*
Operational	OV-6c	***Operational Event/Trace Description***	Supporting	One of the three products used to describe operational activity sequen timing that traces the actions in a scenario or critical sequence of eve *(4.2.2.3.3)*
Operational	OV-7	***Logical Data Model***	Supporting	Documentation of the data requirements and structural business process rules of the Operational View. *(4.2.2.4)*

C4ISR Framework Products

Systems	SV-1	***System Interface Description***	**Essential**	Identification of systems and system components and their interfaces, within and between nodes *(4.2.1.6)*
Systems	SV-2	***Systems Communications Description***	Supporting	Physical nodes and their related communications systems and communications links *(4.2.2.5)*
Systems	SV-3	***Systems-Systems Matrix***	Supporting	Relationships among systems in a given architecture; can be designed to show relationships of interest, e.g., system-type interfaces, planned vs. existing interfaces, etc. *(4.2.2.6)*
Systems	SV-4	***Systems Functionality Description***	Supporting	Functions performed by systems and the information flow among system functions *(4.2.2.7)*
Systems	SV-5	***Operational Activity to System Function Traceability Matrix***	Supporting	Mapping of system functions back to operational activities *(4.2.2.8)*
Systems	SV-6	***System Information Exchange Matrix***	Supporting	Detailing of information exchanges among system elements, applications and H/W allocated to system elements *(4.2.2.9)*
Systems	SV-7	***System Performance Parameters Matrix***	Supporting	Performance characteristics of each system(s) hardware and software elements, for the appropriate timeframe(s) *(4.2.2.10)*
Systems	SV-8	***System Evolution Description***	Supporting	Planned incremental steps toward migrating a suite of systems to a more efficient suite, or toward evolving a current system to a future implementation *(4.2.2.11)*
Systems	SV-9	***System Technology Forecast***	Supporting	Emerging technologies and software/hardware products that are expected to be available in a given set of timeframes, and that will affect future development of the architecture *(4.2.2.12)*
Systems	SV-10a	***System Rules Model***	Supporting	One of three products used to describe systems activity sequence and timing -- Constraints that are imposed on systems functionality due to some aspect of systems design or implementation *(4.2.2.13.1)*
Systems	SV- 10b	***Systems State Transition Description***	Supporting	One of three products used to describe systems activity sequence and timing -- Responses of a system to events *(4.2.2.13.2)*
Systems	SV -10c	***Systems Event/Trace Description***	Supporting	One of three products used to describe systems activity sequence and timing -- System-specific refinements of critical sequences of events described in the operational view *(4.2.2.13.3)*
Systems	SV-11	***Physical Data Model***	Supporting	Physical implementation of the information of the Logical Data Model, e.g., message formats, file structures, physical schema *(4.2.2.14)*

Technical	TV-1	***Technical Architecture Profile***	**Essential**	Extraction of standards that apply to the given architecture *(4.2.1.7)*
Technical	TV-2	***Standards Technology Forecast***	Supporting	Description of emerging standards that are expected to apply to the given architecture, within an appropriate set of timeframes *(4.2.2.15)*

Brief Summary

The importance of the Enterprise Architecture is directly proportionate

to the increase in Warfighting Capability to the Commander.

Development and institutionalization of the USMC MAGTF IT Architecture

will require significant attention as it is integrated into the

operations of the Marine Corps. Treating it as "just a product" will

result in the development of volumes of technical information with

limited purpose and value. Building and maintaining an enterprise

architecture is done according to a lifecycle process similar to that of a

project lifecycle.